

REVIEWS & NOTICES

Survival in the Wild: Camouflage and Mimicry, by DENIS OWEN. Oxford University Press, Oxford, England, UK: 158 pp., 26 × 20 × 0.7 cm, £6.95, 1980.

The first of a planned series of short, heavily-illustrated books on biological 'strategies', Dr Owen's popularized essay on this subject which has long been used to defend the process and existence of natural selection, is a clear and useful introduction to camouflage and mimicry. The presentation is at the level of the interested lay person or beginning student in biology. As the source references do not accompany their portion of the essay, the student wishing to develop a deeper understanding will have to go to the general essays which Owen cites at the end. But as these are readily available under unambiguous headings in any decent university library, and as they make for more interesting reading than does a diluted exposition, I suspect that Owen's book will not be heavily used by prospective biologists at the university level. However, as an introduction to the topic for younger persons it is excellent, and Dr Owen is especially to be commended for putting the phenomena involved into perspective *vis-à-vis* other ecological and genetical processes.

Dr Owen can, however, be faulted for apparently unquestioning acceptance of certain quite questionable ideas in mimicry; just *what* animal is doing the visually-based selection that has generated the so-called mimicry of their hosts by Australian mistletoes? The evidence for small eye-spots on butterfly wings being strike-deflectors is flimsy, to say the least. His account badly mangles the very important story of coral snakes (commonly species of *Micrurus*) and their mimics in seeming unawareness of the solid demonstration that certain vertebrates are genetically programmed to avoid coral snakes (and hence their mimics).

In summary, this is a rather classical and profusely illustrated elementary essay, too brief to explore the interesting details of its topic but quite good at providing an overview for the biologically naive potential enthusiast.

Daniel H. Janzen
(Philadelphia, Pennsylvania, USA)

Bioengineering for Land Reclamation and Conservation, by HUGO SCHIECHTL, coordinated by N. K. HORTSMANN. University of Alberta Press, Edmonton, Alberta, Canada: 404 pp., illustr., 23.5 × 16 × 3 cm, Can. \$30, 1980.

Bioengineering, as conceived by the Author, is a method of land reclamation that is achieved by combining the use of conventional materials with living plants. The techniques adopted aim at achieving a final result that appears to be a work of Nature and not man-made.

The book is divided into sections dealing, respectively, with: technical preparation for bioengineering works; bioengineering methods for earthworks and for water-

ways; the use of plant materials; the choice of methods for special conditions; and the problems of cost. Each section treats a number of topics, with an analysis of their ecological and technical effectiveness, cost, advantages, and disadvantages.

The Author is Head of the Department of Plant Sociology, Watershed Management, and Methods of Reforestation, at the Federal Forestry Research and Experimentation Centre of Austria. It is therefore natural that most of the subject-matter relates to the conditions encountered in a moist, moderate continental climate. However, the Author has also had wide experience in many other parts of the world, and has devoted one section to the special problems of bioengineering in arid and semi-arid zones, at high altitudes and extreme latitudes, and in tropical zones. Solutions are also proposed for a variety of problem areas such as extremely unfavourable soils, disaster areas, sand-dunes, coastal areas, excessively windy areas, turbulent streams, etc.

The book is profusely illustrated with photographs, diagrams, and sketches, which effectively complement the written instructions. It can serve as a manual that brings together a wealth of information and practical advice on bioengineering, and should be useful in many parts of the world for people concerned with slope stabilization, erosion control, stream and river-bank protection, shoreline protection, dune control, highway contouring and protecting, regeneration of industrial tailings, reclamation of mined areas, and drainage—and who are equally concerned with the beauty of the landscape and also with technical effectiveness.

I. Arnon
(Rehovot, Israel)

The Environment from Surplus to Scarcity, by ALLAN SCHNAIBERG. Oxford University Press, Walton Street, Oxford OX2 6DP, England, UK: xiii + 464 pp., tables, 22.0 × 15.0 × 2.5 cm, stiff paper cover, £6.75, 1980.

Professor Schnaiberg, of Northwestern University, has written an important book under a misleading title. The title suggests that the impact of human activity on the environment will be assessed; but no more than a few pages, entirely lacking in quantification, are devoted to this topic. It also suggests, at least to an economist such as the present Reviewer, that the analytical tools of economics will be employed; but this is not the case. The book is a document of political advocacy (not political science). Professor Schnaiberg is convinced, and strives to convince the reader, of a set of interrelated propositions (the following summing of which is by the Reviewer):

1. The effect of human economic activity on the non-human environment is so disastrous and/or morally so reprehensible that the most urgent political issue on the agenda is to stop economic growth, and if possible to reduce the rate of production of economic goods and services.

2. A subsidiary reason for this view is that economic growth produces social injustice.

3. In the United States and other industrialized 'Western' countries, much of the current output could easily be dispensed with because it consists of useless baubles for which consumer demand is drummed up by advertising.

4. The above truths are, however, recognized only by a minority. Against them is lined up the 'growth coalition', consisting of vested interests and working for the continuation of the 'treadmill'.

5. The most important vested interest involved is big business, but on this issue organized labour is allied to it.

6. The task of the minority of which Professor Schnaiberg is a member is to re-educate consumers and workers, and to mobilize them for political action. The goal would be zero economic growth accompanied by a radical reorganization of modern economy and society. Nevertheless, of the desired new organizational principles and patterns, only scattered hints are given.

In contrast to these views, the majority of economists would probably subscribe to the following paradigm:

A. Economic growth has occurred in response to the clearly-expressed preferences of society. Even in the wealthiest countries there is no evidence yet that the majority of the population is saturated with economic goods and services.

B. It behoves social scientists to respect the preferences of their fellow-citizens, not to 're-educate' them.

C. By and large, and in the long run, economic growth has everywhere been accompanied by social progress.

D. Economic growth also tends to promote environmental awareness—a value that has a high 'income elasticity'.

E. The need to preserve the non-human environment imposes constraints and additional costs on economic activity. These should be accepted and borne: but the goal of economic organization and policy remains the efficient use of resources for the production of goods and services desired by people.

It may be noted that several salient points in the above line of argument would command support well beyond the ranks of 'capitalist' economists whom Professor Schnaiberg recognizes as his opponents. For example, historical materialism holds that social evolution tends towards the better, and that it is driven by the quantitative and qualitative growth of the forces of production.

Professor Schnaiberg has been endowed with a knowledge of good and evil. One instance attesting this is his specification (on page 334) of the kinds of information about the benefits and costs of a proposed course of action which 'politically useful' Environmental Impact Statements should provide. He makes clear that he wishes social as well as environmental impacts to be considered fully. Yet, after seven points concerned with the description and measurement of impacts, the eighth and last point jumps to speaking of 'negative' impacts—without any discussion or procedure being envisaged for deciding which impacts should be considered negative. Professor Schnaiberg apparently *knows*; but to others these questions may not look so simple.

Even if one shares Professor Schnaiberg's evaluation of income distribution effects—greater equality better, less equality worse—the social impact of economic activity also has many other dimensions, such as changes in geographical mobility, in occupational mobility, in family patterns, in customs, and in attitudes. Is an increase of mobility a positive or a negative effect? Moreover, the relationship between the quantitative index of an effect and its desirability (in the language of economics, its utility) is usually curvilinear. To take an example,

economic growth tends to loosen family ties. This can be measured by the proportion of 'nuclear' families living apart from the grandparents, by the proportion of young people leaving home before they found a family, or by the average distance between the residences of successive adult generations. As for the evaluation of these measurements, it would perhaps be agreed fairly widely that an increase in residential distance is desirable so long as it reflects the establishment of separate households within the same small settlement or urban district, but becomes undesirable if it proceeds beyond easy visiting range.

Professor Schnaiberg is an ecologist in the political sense; but the concept of equilibrium, which is central to both economics and ecology as a science, appears to be alien to him. Wherever he sees forces working in different directions he discerns 'contradictions', takes a moral stand on one side, and implies that a society free from contradictions would be feasible and desirable.

The reason why Professor Schnaiberg has to pin his hopes on 're-education' seems to be his inadequate understanding, or temperamental dislike, of a particular 'contradiction'—the interaction of supply and demand. Patterns of consumption are not shaped simply by preferences; they are shaped by preferences, prices, and income levels, all together. Early in this century only a well-to-do minority possessed motor-cars, and for them buying a car almost as a matter of course entailed hiring a full-time driver—mechanic. Eighty years later in the developed western countries the great majority of families have a car, many have two, but only a tiny minority employ a driver. Have motorists been re-educated? No, but relative prices have changed: cars can now be afforded by the masses, whereas skilled personal servants have been priced out of the reach of all but the richest (because economic growth opened up other opportunities to them). There can be little doubt that, as the costs of car operation gradually come to reflect natural resource scarcities, and taxes to keep the environment clean are also incorporated into them, consumption patterns will respond. The point which Professor Schnaiberg appears not to have grasped is this: the zeal of 're-educators' is superfluous, because radical changes in the composition of consumption and production can be expected—without any organized manipulation of the preferences of individuals.

With all this said, the publication of Professor Schnaiberg's book can, on balance, be welcomed. He represents an important movement of the age—a loose but large grouping of people who share his overall views, even if many of them would place some of the accents differently. Many of these people—especially the young and inexperienced, and/or the less well educated, and/or those who are wrapped up in an ideology—display extremism and glaring inconsistencies in their views. Professor Schnaiberg is not impartial but he is not intolerant. He does not appreciate the full weight of opposing arguments but he is aware of their existence. He tends perhaps to paternalism but cannot be suspected of totalitarianism. It is to be hoped that he, and other academics who think broadly like him, will act as the intellectual consciences of the environmental movement—to its own benefit and, ultimately, that of society as a whole.

Peter G. Elkan
(Geneva, Switzerland)